Power Quality Analyzers

In industry, healthcare, and business – in fact wherever electrical and electronic equipment is indispensable – power quality plays a critical role in maintaining continuity. Non-linear loads, switching, load changes and equipment problems can result in poor power quality. Poor power quality is not only costly in terms of wasted energy and unnecessary downtime, it's also dangerous and increases risk of equipment failure.

Fluke has an unrivalled range of power quality analyzers to help you maintain high-quality power systems. The tools give you the power to analyze every parameter, power-related event or anomaly faster, safer and in more detail than ever before.

Analyze your power network quickly

Features

	435	434	43B
Application	Three-phase		Single-phase
Inputs	4 voltage and 4 current (for 3 phases and neutral)		1 voltage and 1 current
Measurements			
Vrms, Arms, Hz, W, VAR, VA, PF, Cos φ (DPF), Crest Factors	●	●	●
Harmonics and THD (V,A,W), k-factor	●	●	●
Inter-harmonics	●	●	
kWh and kVARh, kVAh, demand interval	●	●	–
Flicker (Plt, Pst, PF5)	●	●	–
Unbalance	●	●	–
Mains signaling	●	Optional*	–
Recorder/AutoTrend	●/●	●/●	●/–
Logger	●	Optional*	–
System-Monitor (EN50160 compliance)	●	●	–
Real time scope/Phasor diagrams	●/●	●/●	●/–
Dips and swells/Half cycle based	●/●	●/●	●/–
Transient display	●	●	●
Inrush current	●	●	●
IEC61000-4-30, -4-7, -4-15 compliance	Class A	Class B	–
Built-in general purpose Scope and DMM	–	–	●
Memory (screens/data)	50/10	50/10	20 for screens and data
Memory size	16MB**	8 MB**	
FlukeView software and interface cable	●	●	Depending on configuration
Power Log Software	●	Optional*	–
EN61010 safety rating	600 V CAT IV/1000 V CAT III		600 V CAT III
Current clamps included	4 x i430 Flex	4 x i400S	i400S

* Optional functionality can be added with Logger upgrade kit. For details see ordering information.
**Logger uses user-configurable shared memory.

Fluke 43B

A choice of three configurations

	43Basic	43B	43Kit
i400s Current Clamp	●	●	●
SW43W FlukeView Software		●	●
OC4USB Serial Interface Adapter Cable (USB)		●	●
C120 Hard Case		●	●
VPS40 Voltage Probe		●	
Fluke 61 IR Thermometer		●	
VR101S Voltage Event Recorder			●

All configurations are delivered with test leads, probes, clips, battery pack, banana-to-BNC adapter and line voltage adapter/battery charger.

Check the Fluke web site for Technical Specifications and Application Notes with the Fluke power quality analyzers.

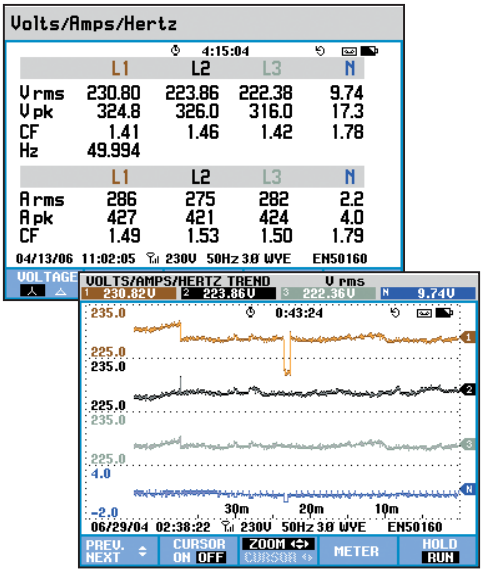
430 Series Three-phase Power Quality Analyzers

Fluke 435

Fluke 434

CAT III 1000V
CAT IV 600V
On all inputs

True RMS



Pinpoint power quality problems faster, safer and in greater detail

The Fluke 435 and 434 three-phase power quality analyzers help you locate, predict, prevent and troubleshoot problems in power distribution systems. These easy-to-use handheld tools have many innovative features to give you the details to pinpoint problems faster and safer.

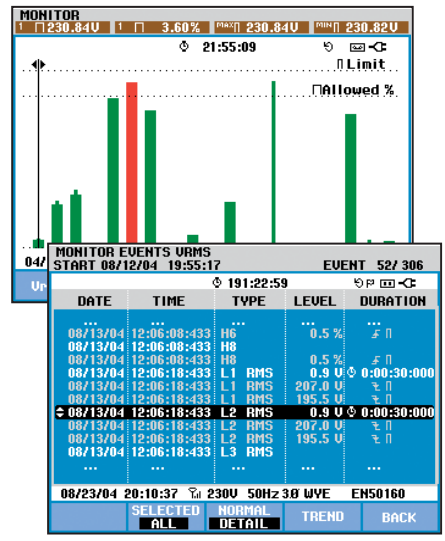
- Complete three-phase troubleshooting tool: measures virtually every power system parameter: voltage, current, frequency, power, power consumption (energy), unbalance and flicker, harmonics and inter-harmonics. Captures events like dips and swells, transients, interruptions and rapid voltage changes.
- The Fluke 435 features 0.1 percent voltage accuracy making it fully compliant with the IEC 61000-4-30 Class A standard
- Logger: record the detail you need Detailed, user-configurable long-time recording gives you the MIN, MAX and AVG readings of up to 100 parameters on all 4 phases with selectable averaging time down to 0.5 seconds. Enough memory is available to record 400 parameters with 1 minute resolution for up to a month.
- Four channels: simultaneously measures voltage and current on all three phases and neutral.
- AutoScaling: easier trend analysis with automatic scaling of the vertical axis you will always use the full display to view the waveforms.
- Automatic transient display: captures up to 40 dips, swells, interruptions or transients automatically.
- Meets the stringent 600 V CAT IV, 1000 V CAT III safety standard required for measurements at the service entrance.
- Rugged, handheld instrument operates for more than 7 hours on included rechargeable NiMH battery pack. Menu-driven interface simplifies operation.
- Extensive data analysis possibilities. Cursors and zoom can be used 'live' while taking the measurements, or 'offline' on stored measurement data. The stored measurements can also be transferred to a PC with FlukeView software (included with Fluke 435 and 434).
- The Fluke 435 comes with Power log software to analyse recorded data and to create reports.
- Complete package includes everything to get started: 4 current clamps, 4 flex clamps with Fluke 435, 5 voltage test leads and clips, line adapter/battery charger and hard case.
- Complies with IEC 61000-4-30 measurement standards.

AutoTrend - Quickly see the trend

Unique AutoTrend gives you fast insight into changes over time. Every displayed reading is automatically and continuously recorded without having to set up threshold levels or interval times, or having to manually start the process. You can quickly view trends in voltage, current, frequency, power, harmonics or flicker on all three phases plus neutral. And you can analyze the trends using the cursors and zoom function – even while background recording continues.

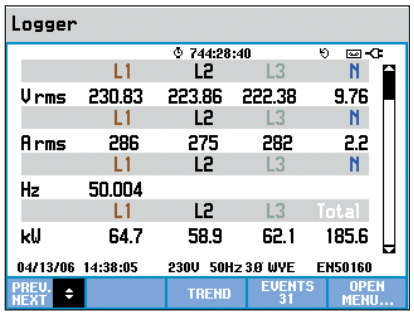
SystemMonitor - Check performance against EN50160 with ease

With a single push of a button, the unique System-Monitor gives you an overview of power system performance, and checks the compliance of incoming power to EN50160 limits or to your own custom specifications. The overview is shown on a single screen, with color-coded bars clearly indicating which parameters fall outside the limits.

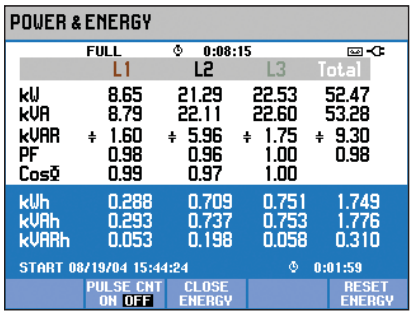


The System-Monitor overview screen gives instant insight into whether the voltage, harmonics, flicker, frequency and the number of dips and swells fall outside the set limits.

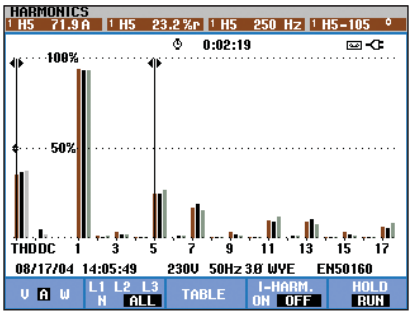
430 Series Three-phase Power Quality Analyzers



Logging function allows you to customize measurement selections and provides instantaneous analysis of user-selectable parameters.



Measure and record power (W), VA and VARs. The 434 adds the ability to record energy consumption.



Track harmonics up to the 50th, and measure and record THD in accordance with IEC61000-4-7 requirements

Fluke 435 with flex clamps

Included Accessories

Hard carrying case C430 (434)/ Water-tight hard case with rollers C435 (435)
4 current clamps, i400s, CAT IV 600 V
4 current clamps, i430-Flex-4pk, CAT IV 600 V (435)
5 Test leads, 4black, 1 green
Battery Charger Eliminator, BC430
FlukeView Software, SW43W
Power Log Software (435)
Optical Cable for USB , OC4USB
Color localization set, WC100
Getting Started printed
User Manual (CD-ROM)

Specifications

(Check the Fluke web for detailed specifications)

Inputs	Number of inputs	4 voltage and current (3 phases + neutral)	
	Maximum input voltage	1000 Vrms (6kV Peak)	
	Maximum sampling speed	200 kS/s on each channel simultaneously	
		Measurement range	**Accuracy**
Volt/Amps/Hertz	Vrms (AC+DC)	1…1000 V	± 0.1% of nominal voltage
	Vpk	1…1400 V	5% of Vnom
	Crest factor, voltage	1.0 ... > 2.8	± 5%
	Arms (AC+DC)	0…20,000 A	± 0.5% ± 5 counts
	Apeak	0 - 5500 A	5%
	Crest factor, A	1 … 10	± 5%
	Hz 50Hz nominal	42.50 ... 57.50 Hz	± 0.01Hz
Dips and swells	Vrms (AC+DC) [2]	0.0% ….100% of Vnom	± 0.2% of nominal voltage
	Arms (AC+DC) [2]	0 … 20,000 A[1]	± 1% ± 5 counts
Harmonics	Harmonic (interharmonic) (n)	DC, 1..50; (Off, 1..49) measured according to IEC 61000-4-7	
	Vrms	0.0 … 1000 V	± 0.05% of nominal voltage
	Arms	0.0 … 4000 mV x clamp scaling	± 5% ± 5 counts
	Watts	depends clamp scaling and voltage	± 5% ± n x 2% or reading, ± 10 counts
	DC voltage	0.0 … 1000 V	± 0.2% of nominal voltage
	THD	0.0 … 100.0 %	± 2.5% V and A (± 5% Watt)
	Hz	0 … 3500 Hz	± 1 Hz
	Phase angle	-360° ... +360°	± n x 1.5°
Power and Energy	Watt, VA, VAR	1.0 … 20.00 MVA[1]	± 1% ± counts
	kWh, kVAh, kVARh	00.00 …200.0 GVAh[1]	± 1.5% ± 10 counts
	Power Factor/ Cos φ / DPF	0…1	± 0.03
Flicker	Pst (1min), Pst, Plt, PF5	0.00 … 20.00	±5%
Unbalance	Volts	0.0 … 5.0%	± 0.5%
	Current	0.0 … 20%	± 1%
Transient capture	Volts	± 6000 V	± 2.5% of Vrms
	Minimum detect duration	5 µs (200 kS/s sampling)	
Inrush mode	Arms (AC+DC)	0.000 … 20.00 kA[1]	± 1% of meas ± 5 counts
	Inrush duration (selectable)	7.5 s … 30 min	± 20 ms (Fnom = 50 Hz)
AutoTrend recording	Sampling	5 readings/sec continous sampling per channel	
	Memory	1800 min, max and avg points for each reading	
	Recording time	Up to 450 days	
	Zoom	Up to 12x horizontal zoom	
Memory	Screens & data	50, shared memory divided between logging, screens and data sets	
Standards	Measurement methods used	IEC61000-4-30 class A; EN50160; IEC 61000-4-15; IEC 61000-4-7	

The advanced functions Interharmonics, Energy, Transients and Inrush are optional for the Fluke 433 and standard available on the Fluke 434.

[1] depending clamp scaling
[2] Value is measured over 1 cycle, commencing at a fundamental zero crossing, and refreshed each half-cycle

Battery life: > 7 hours with rechargeable NiMH (installed); **Battery charging time:** 4 hours typical
Safety: EN61010-1 (2nd edition) pollution degree 2; 1000 V CAT III / 600 V CAT IV
Case: Rugged, shock proof with integrated protective holster, IP51 (drip and dust proof)
Shock: 30 g; Vibration: 3g according to MIL-PRF-28800F Class 2
Operating temperature: 0°C to +50°C
Size (HxWxD): 256 mm x 169 mm x 64 mm; **Weight:** 1.1 kg
Three Years Warranty